## INDEX, VOLUME 17, 1993

## **AUTHOR/TITLE INDEX**

Altman, T.: See Boulos, P. F., 380, 437 Angrilli, F.: See Doria, A., 492 Askin, S. and Fenner, R. T.: Applications of the local boundary integral equation technique to potential problems, 246 Avent, R. R.: See de Béjar, L. A., 34

Baaijens, F. P. T.: See Kootwijk, C. M., 184 Bahnasawi, A. A.: See Mahmoud, M. S., 423 Beard, A. N.: See Bishop, S. R., 170 Bergeles, G. C.: See Glekas, J. P., 506 Bhatta, D. D.: See Rahman, M., 70 Bikangaga, J. H.: See Nassehi, V., 415 Bishop, S. R., Holborn, P. G., Beard, A. N., and Drysdale, D. D.: Dynamic modelling of building fires, 170

Boulos, P. F. and Altman, T.: An explicit approach for modelling closed pipes in water networks, 437

Boulos, P. F., Altman, T. and Liou, J. C. P.: On the solvability of water distribution networks with unknown pipe characteristics, 380

Bradley, F. J., Heinemann, S. and Hoopes, J. A.: A hydraulics-based/optimization methodology for gating design, 406 Brors, B.: See Utnes, T., 522

Bui, R. T.: See Meghlaoui, A., 555; Ouellet, R., 298

Bunday, B. D.: See Sztrik, J., 105

Carey, C., Scanlon, T. J. and Fraser, S. M.: SUCCA—an alternative scheme to reduce the effects of multidimensional false diffusion, 263

Chadha, P. K., Malin, M. R. and Palacio-Perez, A.: Modelling of two-phase flow inside geothermal wells, 236

Chan, C. L.: A local iteration scheme for nonlinear two-dimensional steady state heat conduction: A BEM approach, 650 Chen, C. M.: See Tsai, J. S., 2

Chongqing, W.: See Zili, M., 477 Christov, C. I. and Velarde, M. G.: On localized solutions of an equation governing Benard-Marangoni convection, 311

Chtourou, M.: See Poznyak, A. S., 444
Coelho, P. and Pereira, J. C. F.: Calculation
procedure for 3-D laminar flows in
complex geometries using a nonstaggered
nonorthogonal grid system, 562

Copeland, A. H., Ringo, C. D. and Moore, III, B., Segall, R. S.: Mathematical modelling of singular value decomposition problems for oceans, 536

Cotta, R. M. and Mikhailov, M. D.: Integral transform method, 156

Dahhou, B.: See Zeng, F., 58
Darrag, A. A. and El Tawil, M. A.: The consolidation of soils under stochastic initial excess pore pressure, 609
Davey, K.: An analytical solution for the unidirectional solidification problem, 658

Davis, R. P.: See Sengupta, S., 41

de Bejar, L. A., Robinson, P. F. and Avent, R. R.: Integrating mathematical CAD and artificial simulation of plastic rotation in heat-straightening processes, 34

De Marchi, S.: See Doria, A., 492 Ding, K.: See Fan, J., 632 Doria, A., Angrilli, F. and De Marchi, S.: Inverse kinematics robot calibration by spline functions, 492

Dost, S.: See Tezer-Sezgin, M., 47 Drikakis, D. and Tsangaris, S.: On the solution of the compressible Navier-Stokes equations using improved flux vector splitting methods, 282

Drysdale, D. D.: See Bishop, S. R., 170 Dumir, P. C. and Kumar, R.: Complex variable boundary element method for torsion of anisotropic bars, 80

El Tawil, M. A.: See Darrag, A. A., 609; Gawad, E. F., 329 Ellis, H.: See Watanabe, T., 547

Fadel, G. M. and Jeters, S. M.: Bracketing and convergence in thermal systems simulation, 195

Fan, J. and Ding, K.: Exact solution for thick laminated closed cylindrical shells with two clamped edges, 632

Feddes, J. J. R.: See Liao, C. M., 133 Fenner, R. T.: See Askin, S., 246 Ferguson, W. J.: See Lewis, R. W., 15 Ferrell, W. G.: See Sengupta, S., 41 Fitt, A. D.: The character of two-phase gas/particulate flow equations, 338 Fraser, S. M.: See Carey, C., 263

Gawad, E. F. A. and El Tawil, M. A.: General stochastic oscillatory systems, 329 Ghose, D., Prasad, U. R. and Guruprasad, K.: Missile battery placement for air defense: A dynamic programming approach, 450

Glekas, J. P. and Bergeles, G. C.: A numerical method for recirculating flows on generalized coordinates: Application in environment flows, 506

Gu, L.: A compatible boundary element method for plane elasticity and fracture mechanics, 394

Guruprasad, K.: See Ghose, D., 450 Guthrie, R. I. L.: See Mazumdar, D., 255

Hansen, L.: See Huang, W.-Y., 89
Hearn, C. J.: Response of a uniform unbounded ocean to a moving tropical cyclone, 205

Heinemann, S.: See Bradley, F. J., 406
Hesse, C.: Approximate expected hitting times of certain state variables of physics and economics, 603

Heuts, R., Nederstigt, P., Roebroek, W. and Selen, W.: Multiproduct cycling with packaging in the process industry, 485 Hill, J. M. and Jennings, M. J.: Formulation

of model equations for heating by microwave radiation, 369 Holborn, P. G.: See Bishop, S. R., 170 Hondoh, K.: See Matsumoto, T., 586 Hoopes, J. A.: See Bradley, F. J., 406 Huang, W. -Y and Uri, N. D.: The effect of crop rotation on reducing excess nitrogen fertilizer use, 141

Huang, W. -Y., Hansen, L. and Uri, N. D.: The timing of nitrogen fertilizer application: The case of cotton production in the United States, 89

Issa, A.: See Kukreti, A. R., 618

Jennings, M. J.: See Hill, J. M., 369 Jeter, S. M.: See Fadel, G. M., 195 Jianzhong, W.: See Qingjie, Z., 25

Kootwijk, C. M. and Baaijens, F. P. T.:
Application of the satisfying
Babuska-Brezzi method to a
two-dimensional diffusion problem, 184
Krishnaswamy, K. N.: See Rao, K. S., 577
Kukreti, A. R., Zaman, M. M. and Issa, A.:
Analysis of fluid storage tanks including
foundation—superstructure interaction, 618
Kumar, R.: See Dumir, P. C., 80

Lewis, R. W.: See Zheng, Y., 388 Lewis, R. W. and Ferguson, W. J.: A partially nonlinear finite element analysis of heat and mass transfer in a capillary-porous body under the influence of a pressure gradient, 15

Liao, C. M. and Feddes, J. J. R.: Design of an airborne dust control system in ventilated animal housing, 133 Liou, J. C. P.: See Boulos, P. F., 380

Madera, A. G.: Modelling of stochastic heat transfer in a solid, 664 Mahmoud, M. S. and Bahnasawi, A. A.:

Mahmoud, M. S. and Bahnasawi, A. A.: Indirect discrete-time adaptive algorithm for manipulator control, 423
Malin, M. R.: See Chadha, P. K., 236

Malin, M. R.: See Chadha, P. K., 236 Matsumoto, T., Tanaka, M. and Hondo, K.: Some nonsingular direct formulations of boundary integral equations for thin elastic plate bending analysis, 586

Mazumdar, D. and Guthrie, R. I. L.: On mathematical models and numerical solutions of gas stirred ladle systems, 255 McGarva, J. and Mullineux, G.: Harmonic

representation of closed curves, 213 Meghlaoui, A., Ouellet, R. and Bui, R. T.: A general structure of specific optimal control, 555

Mikhailov, M. D.: See Cotta, R. M., 156 Militzer, J.: See Sun, 125 Moore, III, B.: See Copeland, A. H., 536 Mullineux, G.: See McGarva, J., 213

Najim, K.: See Poznyak, A. S., 444
Nassehi, V. and Bikangaga, J. H.: A mathematical model for the hydrodynamics and pollutants transport in long and narrow tidal rivers, 415
Nederstigt, P.: See Heuts, R., 485
Nelson, R. J.: See Watton, J., 355
Nihtila, M. T.: See Zeng, F. Y., 58

Palacio-Perez, A.: See Chadha, P. H., 236
Park, K., Wang, D. M. and Watkins, A. P.:
A contribution to the design of a novel
direct-injection diesel engine combustion
system—analysis of pip size, 114
Pereira, J. C. F.: See Coelho, P., 562
Philippopoulos, C.: See Psyllos, A., 459
Poznyak, A. S., Najim, K. and Chtourou,
M.: Use of recursive stochastic algorithm
for neural networks synthesis, 444
Prasad, U. R.: See Ghose, D., 450
Prokopakis, G. J.: A decoupled direct

method for the solution of ordinary boundary value problems, 499 Psyllos, A. and Philippopoulos, C.: Modelling of monolithic converters with axial catalyst distribution, 459

Qing-Hua, Q.: See Xiao-Qiao, H., 149 Qinghua, Q.: See Qingjie, Z., 25 Qingjie, Z., Qinghua, Q. and Jianzhong, W.: A theoretical model on coupled fluid-structure impact buckling, 25

Raghavendra, B. G.: See Rao, K. S., 577 Rahman, M. and Bhatta, D. D.: Evaluation of added mass and damping coefficient of an oscillating circular cylinder, 70

Rao, K. S., Raghavendra, B. G. and Krishnaswamy, K. N.: Experimental evaluation of system configurations of an industrial processing system using a Markovian approach, 577
Ringo, C. D.: See Copeland, A. H., 536
Robinson, P. F.: See de Bejar, L. A., 34
Roebroek, W.: See Heuts, R., 485

Salameh, M. K.: Mathematical modelling of the effect of human learning on the finite production inventory model, 613

Sarper, H.: Scheduling for the maintenance of completely processed low-demand large items, 321

Scanlon, T. J.: See Carey, C., 263 Segall, R. S.: See Copeland, A., 536 Segall, R. S.: An update on bi-level geometric programming: A new optimization model, 219 Selen, W.: See Heuts, R., 485

Selvam, A. M.: Universal quantification for deterministic chaos in dynamical systems, 642

Sengupta, S., Davis, R. P. and Ferrell, W. G.: Production planning and control in a JIT environment, 41

Sen, M.: Dynamic analysis of a hemispherical dome levitated by an air jet, 226

Shariff, M. H. B. M.: A general approach to axial deformation of bonded elastic mounts of various cross-sectional shapes, 430

Shieh, L. S.: See Tsai, J. S. H., 2 Siming, W.: See Zili, M., 477 Siming, W.: The probabilities of the CPB system, 98

Sladek, J.: See Sladek, V., 468 Sladek, V., Sladek, J. and Tanaka, M.: Multiple reciprocity method for harmonic vibration of thin elastic plates,

Soh, A. K.: Determination of the mechanical properties of a composite using the least squares method, 271

Sun, Y. and Militzer, J.: The piecewise parabolic finite analytic method Part 2: Application, 125

Sztrik, J. and Bunday, B. D.: Asymptotic analysis of the heterogeneous machine interference problem with random environments, 105

Tabucanon, M. T. and Ong, J. L.: Multiproduct, multistage machine requirements planning models, 162 Tanaka, M.: See Matsumoto, T., 586;

Sladek, V., 468 Tezer-Sezgin, M. and Dost, S.: On the fundamental solutions of the axisymmetric Helmholtz-type equations, 47

Tin-Loi, F.: A GAMS model for the plastic limit analysis of plane frames, 595 Tsai, J. S. H., Chen, C. M. and Shieh, L. S.: Modelling of multirate feedback systems using uniform-rate models, 2

Uri, N. D.: See Huang, W.-Y., 89; 141 Utnes, T. and Brørs, B.: Numerical modelling of 3-D circulation in restricted

Velarde, M. G.: See Christov, 311

waters, 522

Tsangaris, S.: See Drikakis, D., 282

Wang, D. M.: See Park, 114
Watanabe, T. and Ellis, H.: Robustness in stochastic programming models, 547
Watkins, A. P.: See Park, 114
Watton, J. and Nelson, R. J.: Evaluation of an electrohydraulic forge valve behavior using a CAD package, 355

Xiao-Qiao, H. and Qing-Hua, Q.: Nonlinear analysis of Reissner's plate by the variational approaches and boundary element methods, 149

Zaman, M. M.: See Kukreti, A. R., 618
Zeng, F. Y., Dahhou, B. and Nihtila, M. T.:
Adaptive control of a nonlinear
fermentation process via MRAC
technique, 58
Zheng, Y. and Lewis, R. W.: On the
optimization concept of grey systems, 388
Zlil, M., Siming, W. and Chongqing, W.:
The waiting times for the CPB system, 477

## **KEYWORD INDEX**

Adaptive control, 423 Added mass, 70 Air defense systems, 450 Airborne dust, 133 Analytical solution, 658 And just-in-time, 41 Animal housing, 133 Anisotropic, 80 Approximation, 492 Asymptotic expansion, 603 Axisymmetric problem, 47 Barotropic, 205
Batch service, 98
BEM, 394
Benard convection, 311
Bi-level programming, 219
Bottom friction, 205
Boundary integral equation, 246
Boundary element, 246
Boundary element method, 468, 586, 650
Boundary integral equations, 468
Bowl, 114
Branch-and-bound, 219
Branching rivers, 415
Bubble stirred ladles, 255

CAD, 355 Calcinator, 444 Calibration, 492 Capacity allocation, 321 Capillary-porous, 15 Catalyst distribution, 459 Cell dynamical system, 642 Chaos, 226 Chemically reactive pollutants, 415 Closed curves, 213 Closed pipes, 437 Closed-loop, 555 CO oxidation, 459 Compartment fire, 170 Complex variable, 80 Compliance cost, 141 Compressible, 430 Computer simulation, 34 Computer hard disc manufacturing, 162 Configurations, 577 Consolidation, 609 Container assignment, 485 Convergence, 195 Coordinate transformation, 506 Correlation, 664 Cotton production, 89 Coupler curves, 213 CVBEM, 80

Damping coefficients, 70 Depth-averaged, 205 Deterministic chaos, 642 Diesel, 114 Diffusion problem, 184 Dynamic buckling, 25 Dynamic programming methodology, 450 Dynamical systems, 226, 536

Elastic constants, 271
Elasticity, 394
Engine, 114
Environmental management, 547
Ergodic process, 34
Exact solution, 632
Excess nitrogen, 141
Expectation, 664
Expected hitting time, 603

Failure-free operation time, 105 False diffusion, 263 Farm-level decision, 89 Fermentation process, 58 Fertilizer complex, 577 Fiber-matrix interface, 271 Fiber-reinforced composite, 271 Finite-volume method, 236 Finite analytic method, 125 Finite elements, 522 Finite volume method, 506 Flashover, 170 Floating model, 388 Flow modelling, 338 Fluid-structure impact buckling, 25 Fluid power, 355 Fluid dynamics, 522 Flux vector splitting methods, 282 Foundation, 618 Fourier coefficients, 213 Fracture mechanics 394 Fundamental solution, 47

Gas/particulate flow, 338 General approach, 430 Generating function, 98 Geometric programming, 219 Geothermal wells, 236 Goal programming, 162 Graph theory, 380 Grey system, 388 Grey optimization, 388

Harmonics, 213 Heat-straightening process, 34 Helmholtz-type equation, 47 Heterogeneous machine interference problem, 105 Hovercraft, 226 Hybrid, 263 Hydrodynamic slamming, 25 Hyperbolicity maps, 338 Hyperellipse, 195 Hypersingular kernel, 586

Illposedness, 338 Impact engineering, 25 Integral transform, 156 Integrated Brownian motion, 603 Interaction, 618 Interfacial thermal resistance, 658 Interfacial instability, 311 Interruptions, 577 Interval mathematics, 388 Inventory, 613

Job shop planning, 321 **Jumps**, 170

Kuramoto-Sivashinsky-Velarde equation, 311

Laminar three-dimensional flows, 562 Laplace-Stieltjes transform, 477 Learning, 613 Least squares method, 271 Levitation, 226 Limit analysis, 595 Linear algebra, 380 Linear quadratic regulator, 133 Lumped-parameter model, 133 Lyapunov's method, 58

Machine requirements planning, 162 Maintenance/production planning, 321 Markov model, 577 Mathematical programming, 41, 595 Mathematical CAD, 34 Mathematical model, 282 Maximum principle, 298 Maxwell's equations of electromagnetism, 369 Mechanisms, 213 Microwave heating, 369 Missile battery placement, 450 Mixed finite element method, 184 Mixed-integer programming, 162, 321 Model reference adaptive control, 58 Model conversions, 2 Model equations, 369 Modeling language, 595 Monolith converter, 459 Multiple-reciprocity method, 468 Multiproduct cycling, 485

Multirate system, 2

Navier-Stokes equations, 125, 562 Network modeling algorithms, 437 Network solvability, 380 Neural network, 444 Nitrogen fertilizer, 89 Nitrogen fertilizer use, 141 Non-hyperbolicity, 338 Non-orthogonal grid, Nonlinear dynamics, 170 Nonlinear heat conduction, 650 Nonlinear problem, 156 Nonlinear Reissner plate, 149 Nonlinear adaptive control, 58 Nonlinear systems, 329, 555 Nonlinear and explicit optimization, 380 Nonorthogonal coordinates, 562 Nonorthogonal grid, 506 Nonstaggered grids, 562 Numerical method, 156 Numerical solution, 255 Numerical simulation, 125 Numerical modelling, 522

Ocean modelling, 536 Oceanography, 522 Optimal control, 298, 555 Optimization, 219, 388, 444 Order quantity, 613 Ordinary boundary value problems, 499 Orthotropy; 632 Oscillating cylinder, 70 Oscillatory systems, 329

Parabolic and exponential curve fits, 369 Penetration algorithms, 450 Penrose tiling pattern, 642 Pip, 114 Plasticity, 595 Plate bending, 394 Plate vibration, 468 Polymerization industry, 485 Pore pressure, 609 Potential problem, 246 Press control system, 355 Pressure gradient, 15 Principal nth root, 2 Priority, 98, 477 Production, 613 Production planning, 485 Proportional-integral controller, 133 Proportional controller, 133

Quality, 41 Quasi-single phase modelling, 255 Queue length, 98, 477

Random environment, 105 Random processes, 329 Regularization, 468, 586 Risk neutral, 89 Risk averse, 89 Robot, 492 Robotics, 423 Robustness, 547

SBB method, 184 Second variation—convex analysis mixed method, 149 Series solution, 246 Shooting methods, 499 Simulation, 41, 195, 577 Singular value decomposition, 536 Sintering, 650 Soil. 618 Soil mechanics, 609 Spectral analysis, 34 Splines, 492 Spray, 114 State equation, 632 State variable, 603 Stationary random process, 34 Steel plates, 34 Stochastic, 609 Stochastic algorithm, 444 Stochastic differential equations, 603 Stochastic heat transfer, 664 Stochastic partial differential equations, 664 Stochastic process, 577 Stochastic programming, 547 Strange attractor, 642 Structures, 595 Surface tension-driven convection, 311

Tank, 618 Taylor-Galerkin finite elements, 415 Thermal system, 298 Thin elastic plate, 586 Three-dimensional bonded mounts, 430 Thick closed laminated cylindrical shell; 632 Tidal dynamics, 415 Torsion, 80 Tropical cyclone, 205 Turbulence, 506 Two-phase flow, 236, 338 Two barrier problem, 603 Two-stage programming, 547

Unidirectional solidification, 658 Uniform-rate system, 2 University algorithm for chaos, 642 Upwind cell, 263 Upwind schemes, 282

Variational principle, 149 Variational imbedding, 311 Vee heat applications, 34 Viscous compressible flows, 282

Waiting time, 477 Water quality, 141 Water networks, 380 Water distribution, 437 Wave loading, 70 Weak convergence, 105 Weight analysis, 388